

RESPIRATORY PROTECTIVE DEVICES APPROVED BY THE BUREAU OF MINES AS OF OCTOBER 16, 1958

BY E. J. KLOOS AND S. J. PEARCE

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by

E. J. Kloos^{2/} and S. J. Pearce^{3/}

INTRODUCTION

One phase of the work of the Bureau of Mines in health and safety is promoting the use of safe, satisfactory, and reliable respiratory-protective devices. To insure that such devices will be available, the Bureau has established schedules of minimum-performance requirements for the approval of self-contained breathing apparatus (1),^{4/} gas masks (2), supplied-air respirators (hose masks, air-line respirators, and abrasive-blasting helmets, hoods, or masks) (3), dispersoid (dust, fume, and mist) respirators (4), and nonemergency gas respirators (chemical-cartridge respirators) (5). Approval tests of self-contained breathing apparatus are conducted by Health and Safety District B; approval tests of other types of respiratory-protective devices are conducted by the Branch of Health Research.

Manufacturers of respiratory-protective devices may submit their equipment to the Bureau of Mines for approval under the requirements of these schedules. If the device, when tested by the Bureau, meets the schedule requirements, a certificate of approval will be granted, which not only states that the equipment has passed the schedule requirements but also gives information about the limitations of the device. If it is found at any time that approved devices do not meet the requirements of the pertinent schedule, the Bureau may rescind approval.

This information circular does not purpose to provide information on the mode of operation or function of the various types of respiratory-protective devices. Such information is provided in other Bureau of Mines publications (6, 7, 8, 9, 10, 11, 12, 14).

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^{4/} *Italicized numbers in parentheses refer to items in the bibliography at the end of this report.*

APPROVAL LABELS

To provide purchasers and users with means of identifying approved devices and procuring the proper parts when making repairs and replacements, the Bureau requires that all devices marketed under provisions of the approval system of the Federal Bureau of Mines must have an approval label with the seal of the Bureau, the approval number, the name of the manufacturer to whom the approval is issued, and the conditions for which the approval is granted. Essential parts of the devices are marked with the approval number. The approval obligates the manufacturer to maintain the quality of the product and to construct each device, in all its parts, in exact accordance with specifications of the device that the Bureau examined and approved. Any device that exhibits changes in design or includes any parts that were not in the device approved, whether the change is made by the manufacturer or the consumer, is not permissible and may not bear the Bureau of Mines approval label.

The approval label (metal plate) is affixed to self-contained breathing apparatus. Canister-type gas masks bear a label on the case and on each canister, and the approval number is marked on the facepiece and canister harness, for example, "BM-1400." Type A (hose mask) and Type B (special hose mask without blower) supplied-air respirators have the approval label on their cases or containers, and the approval number is marked on the air-supply arrangement, air-supply line, facepiece, and harness. Type C (air-line respirator) and Type CE (abrasive-blasting respirator) have the approval label on their cases (if provided) or on a special sheet with instructions for using the device; and the approval number is marked on the air-supply line, air-regulating valve, harness, and the facepiece, hood, or helmet. The containers of dispersoid respirators and the replacement-filter units bear approval labels, and the approval number is marked on the facepiece and each filter unit. The filter units also bear a marking that designates the type of particulate matter for which they are approved, such as pneumoconiosis-producing and nuisance dusts, toxic dusts, or fumes.

APPROVED DEVICES AS OF OCTOBER 16, 1958

Lists of approved devices are published for the information of the public. The last list published (13) included all devices approved as of June 2, 1952.

Following is a list of all active and inactive respiratory-protective devices that had obtained official certification of approval from the Bureau of Mines as of October 16, 1958. "Active" devices are those currently being manufactured and sold and are listed with the manufacturer's current designation. "Inactive" devices are no longer being manufactured but retain their Bureau of Mines approval status. The addresses of the manufacturers of approved devices are listed alphabetically at the end of this report.

Lists of respiratory protective devices approved after October 16, 1958, may be obtained from the Branch of Health Research, Bureau of Mines, 4800 Forbes Avenue, Pittsburgh 13, Pa.

Self-Contained Breathing Apparatus Approved Under
Schedules 13, 13A, 13B, 13C, and 13D

Active Devices

1. McCaa oxygen breathing apparatus. Approval BM-1303, issued to Mine Safety Appliances Co., August 31, 1925, under Schedule 13.
2. M.S.A. 1-hour oxygen breathing apparatus. Approval BM-1306, issued to Mine Safety Appliances Co., July 28, 1937, under Schedule 13B.
3. Chemox oxygen breathing apparatus (3/4-hour self-contained oxygen-generating breathing apparatus). Approval BM-1307, issued to Mine Safety Appliances Co., October 3, 1946, under Schedule 13C.
4. Scott Air-Pak demand-type apparatus (1/2-hour self-contained compressed-air breathing apparatus). Approval BM-1308, issued to Scott Aviation Corp., October 3, 1946, under Schedule 13C.
5. M.S.A. demand-type oxygen apparatus (1/2-hour self-contained compressed-oxygen breathing apparatus). Approval BM-1309, issued to Mine Safety Appliances Co., October 3, 1946, under Schedule 13C.
6. M.S.A. demand-type air apparatus (1/2-hour self-contained compressed-air breathing apparatus). Approval BM-1310, issued to Mine Safety Appliances Co., November 26, 1946, under Schedule 13C.
7. McCaa 2-hour oxygen breathing apparatus with lifeline telephone (full) facepiece. Supplemental approval BM-1303S, issued to Mine Safety Appliances Co., November 20, 1956, under Schedule 13D.

Inactive Devices

1. Gibbs oxygen breathing apparatus. Approval BM-1300, issued to Mine Safety Appliances Co., January 15, 1920, under Schedule 13.
2. Paul oxygen breathing apparatus. Approval BM-1301, originally issued to American Atmos Corp., January 15, 1920; later transferred to Mine Safety Appliances Co., under Schedule 13.
3. Fleuss-Davis Proto oxygen breathing apparatus. Approval BM-1302, issued to Siebe, Gorman & Co. (Ltd.), February 7, 1924, under Schedule 13.
4. Draeger oxygen breathing apparatus (1924 type). Approval BM-1304, issued to Draegerwerk, August 1, 1929, under Schedule 13.
5. McCaa 1/2-hour oxygen breathing apparatus. Approval BM-1305, issued to Mine Safety Appliances Co., April 1, 1931, under Schedule 13A.

Gas Masks Approved Under Schedules 14, 14A,
14B, 14C, 14D, 14E, and 14F

Type A: Acid-Gas Masks

Active Devices

1. M.S.A. hydrocyanic-acid-gas mask. Approvals BM-1413 (regular-size canister) and BM-1414 (supersize canister), issued to Mine Safety Appliances Co., December 9, 1933, under Schedule 14B.
2. Acme chlorine-gas mask. Approval BM-1421, issued to Acme Protection Equipment Co., Inc., April 21, 1939, under Schedule 14D.
3. M.S.A. chlorine-gas mask. Approval BM-1422, issued to Mine Safety Appliances Co., May 26, 1939, under Schedule 14D.
4. Davis hydrocyanic acid-gas mask. Approval BM-1424, issued to Davis Emergency Equipment Co., Inc., December 11, 1939, under Schedule 14D.
5. Davis chlorine-gas mask. Approval BM-1427, issued to Davis Emergency Equipment Co., Inc., June 26, 1940, under Schedule 14D.
6. Willson hydrocyanic acid-gas mask. Approval BM-1428, issued to Willson Products, Inc., August 30, 1940, under Schedule 14D.
7. Bullard hydrocyanic acid-gas mask. Extension of approval BM-1428, issued to E. D. Bullard Co., May 20, 1947, under Schedule 14D.
8. Willson chlorine-gas mask. Approval BM-1453, issued to Willson Products, Inc., January 20, 1953, under Schedule 14E.
9. Bullard chlorine-gas mask. Extension of approval BM-1453, issued to E. D. Bullard Co., June 28, 1957, under Schedule 14E.

Inactive Devices

1. Willson chlorine-gas mask. Approval BM-1426, issued to Willson Products, Inc., March 8, 1940, under Schedule 14D.
2. Bullard chlorine-gas mask. Extension of approval BM-1426, issued to E. D. Bullard Co., May 20, 1947, under Schedule 14D.
3. Bullard chlorine-gas mask. Approval BM-1430, issued to E. D. Bullard Co., February 10, 1941, under Schedule 14D.
4. Bullard hydrocyanic acid-gas mask. Approval BM-1431, issued to E. D. Bullard Co., February 10, 1941, under Schedule 14D.

Type B: Organic-Vapor Masks

Active Devices

1. M.S.A. organic-vapor mask. Approval BM-1415, issued to Mine Safety Appliances Co., July 28, 1936, under Schedule 14D.
2. Davis organic-vapor mask. Approval BM-1417, issued to Davis Emergency Equipment Co., Inc., May 3, 1938, under Schedule 14D.
3. Acme organic-vapor mask. Approval BM-1418, issued to Acme Protection Equipment Co., Inc., May 13, 1938, under Schedule 14D.
4. Willson organic-vapor mask. Approval BM-1423, issued to Willson Products, Inc., October 6, 1939, under Schedule 14D.
5. Willson organic-vapor mask with large canister. Approval BM-1437, issued to Willson Products, Inc., August 5, 1944, under Schedule 14E.
6. M.S.A. organic-vapor mask with supersize G.M.A. canister. Approval BM-1441, issued to Mine Safety Appliances Co., August 2, 1946, under Schedule 14E.
7. Bullard organic-vapor mask. Extension of approval BM-1423, issued to E. D. Bullard Co., May 20, 1947, under Schedule 14D.
8. Bullard organic-vapor mask with large canister. Extension of approval BM-1437, issued to E. D. Bullard Co., May 20, 1947, under Schedule 14E.

Inactive Devices

1. Bullard organic-vapor mask. Approval BM-1419, issued to E. D. Bullard Co., July 15, 1938, under Schedule 14D.

Type BE: Organic-Vapor, Toxic-Dust, Fume, Mist, and Fog Masks

Active Devices

1. Willson WIG-LG1-G mask for organic vapors, toxic dusts, fumes, mists, and fogs. Approval BM-1446, issued to Willson Products, Inc., April 17, 1950, under Schedule 14E.

Type AB: Acid-Gas and Organic-Vapor Masks

Active Devices

1. Davis acid-gas and organic-vapor mask. Approval BM-1411, issued to Davis Emergency Equipment Co., Inc., January 19, 1931, under Schedule 14B.

2. M.S.A. hydrogen sulfide and petroleum-vapor mask. Approvals BM-1416 and BM-1416A, issued to Mine Safety Appliances Co., June 16, 1937, and July 1, 1937, respectively, under Schedule 14D.

3. Willson hydrogen sulfide and petroleum-vapor mask. Approval BM-1444, issued to Willson Products, Inc., April 18, 1949, under Schedule 14E.

4. Willson WIG-LG3 acid-gas and organic-vapor mask. Approval BM-1450, issued to Willson Products, Inc., March 22, 1951, under Schedule 14E.

5. Bullard hydrogen sulfide and petroleum-vapor mask. Extension of approval BM-1444, issued to E. D. Bullard Co., April 15, 1954, under Schedule 14E.

6. Bullard acid-gas and organic-vapor mask. Extension of approval BM-1450, issued to E. D. Bullard Co., April 15, 1954, under Schedule 14E.

Inactive Devices

1. M.S.A. acid-gas and organic-vapor mask. Approval BM-1409, issued to Mine Safety Appliances Co., January 23, 1930, under Schedule 14A.

2. M.S.A. hydrogen sulfide and petroleum-vapor mask. Approval BM-1410, issued to Mine Safety Appliances Co., July 16, 1930, under Schedule 14A.

3. M.S.A. hydrogen sulfide and petroleum-vapor mask. Approval BM-1412, issued to Mine Safety Appliances Co., September 14, 1931, under Schedule 14B.

Type ABE: Acid-Gas, Organic-Vapor, Toxic-Dust,
Fume, Mist, and Fog Masks

Active Devices

1. Willson WIG-LG3-G acid-gas, organic-vapor, toxic-dust, fume, mist, and fog mask. Approval BM-1451, issued to Willson Products, Inc., March 22, 1951, under Schedule 14E.

2. Bullard acid-gas, organic-vapor, toxic-dust, fume, mist, and fog mask. Extension of approval BM-1451, issued to E. D. Bullard Co., May 29, 1951, under Schedule 14E.

Type C: Ammonia-Gas Masks

Active Devices

1. Acme ammonia-gas mask. Approval BM-1420, issued to Acme Protection Equipment Co., Inc., March 25, 1939, under Schedule 14D.

2. Willson ammonia-gas mask with large canister. Approval BM-1438, issued to Willson Products, Inc., September 22, 1944, under Schedule 14E.

3. M.S.A. ammonia-gas mask with supersize G.M.D. canister. Approval BM-1442, issued to Mine Safety Appliances Co., August 29, 1946, under Schedule 14E.

4. Bullard ammonia-gas mask with large canister. Extension of approval BM-1438, issued to E. D. Bullard Co., May 20, 1947, under Schedule 14E.

5. M.S.A. ammonia-gas mask. Approval BM-1449, issued to Mine Safety Appliances Co., December 19, 1950, under Schedule 14E.

6. LaFrance ammonia-gas mask. Extension of approval BM-1449, issued to American-LaFrance-Foamite Corp., March 9, 1951, under Schedule 14E.

7. Davis ammonia-gas mask. Approval BM-1452, issued to Davis Emergency Equipment Co., Inc., March 29, 1951, under Schedule 14E.

8. Willson ammonia-gas mask. Approval BM-1454, issued to Willson Products, Inc., November 29, 1955, under Schedule 14F.

Inactive Devices

1. M.S.A. ammonia-gas mask. Approval BM-1401, issued to Mine Safety Appliances Co., April 10, 1920, under Schedule 14.

2. M.S.A. ammonia-gas mask. Approval BM-1404, issued to Mine Safety Appliances Co., March 10, 1926, under Schedule 14A.

3. LaFrance ammonia-gas mask. Extension of approval BM-1401, issued to American-LaFrance & Foamite Industries, Inc., June 23, 1927, under Schedule 14.

4. M.S.A. ammonia-gas mask. Approval BM-1406, issued to Mine Safety Appliances Co., February 14, 1928, under Schedule 14A.

5. McDonald ammonia-gas mask. Extension of approval BM-1406, issued to B. F. McDonald Co., May 17, 1938, under Schedule 14A.

6. Davis ammonia-gas mask. Approval BM-1408, originally issued to Bullard-Davis, Inc., December 19, 1928; later transferred to Davis Emergency Equipment Co., Inc., under Schedule 14A.

7. LaFrance ammonia-gas mask. Extension of approval BM-1408, issued to American-LaFrance & Foamite Industries, Inc., November 18, 1930, under Schedule 14A.

8. Willson ammonia-gas mask. Approval BM-1425, issued to Willson Products, Inc., December 20, 1939, under Schedule 14D.

9. Bullard ammonia-gas mask. Approval BM-1429, issued to E. D. Bullard Co., February 10, 1941, under Schedule 14D.

10. LaFrance ammonia-gas mask. Extension of approval BM-1406, issued to American-LaFrance & Foamite Industries, Inc., February 20, 1946, under Schedule 14A.

11. Bullard ammonia-gas mask. Extension of approval BM-1425, issued to E. D. Bullard Co., May 20, 1947, under Schedule 14D.

Type D: Carbon Monoxide-Gas Masks

Active Devices

1. M.S.A. self-rescuer. Approval BM-1447, issued to Mine Safety Appliances Co., April 17, 1950, under Schedule 14E.

Inactive Devices

1. M.S.A. self-rescuer. Approval BM-1402, issued to Mine Safety Appliances Co., March 6, 1924, under Schedule 14A.

Type N: Universal Gas Masks

Universal Gas Masks With Filters That Afford Respiratory Protection Against Smokes from Ordinary Fires and Limited Respiratory Protection Against Dusts, Fumes, Mists, and Fogs

Active Devices

1. M.S.A. All-Service gas mask. Approval BM-1405, issued to Mine Safety Appliances Co., August 24, 1928, under Schedule 14A.

2. McDonald All-Service gas mask. Extension of approval BM-1405, issued to B. F. McDonald Co., October 2, 1937, under Schedule 14A.

3. Acme All-Purpose gas mask. Approval BM-1435, issued to Acme Protection Equipment Co., Inc., September 30, 1942, under Schedule 14E.

4. Willson WUG-N1 universal gas mask. Approval BM-1443, issued May 25, 1948, and approval BM-1443A with window indicator canister, issued June 9, 1958, to Willson Products, Inc., under Schedule 14E.

5. Bullard Multigas universal gas mask. Extension of approval BM-1443, issued to E. D. Bullard Co., January 12, 1949, under Schedule 14E.

Inactive Devices

1. M.S.A. All-Service universal gas mask. Approval BM-1403, issued to Mine Safety Appliances Co., July 1, 1925, under Schedule 14A.

2. Willson WUG-N1 universal gas mask. Approval BM-1432, issued to Willson Products, Inc., February 2, 1942, under Schedule 14E.

3. Bullard universal gas mask. Approval BM-1439, issued to E. D. Bullard Co., May 16, 1945, under Schedule 14E.

4. Bullard universal gas mask. Extension of approval BM-1432, issued to E. D. Bullard Co., May 20, 1947, under Schedule 14E.

Universal Gas Masks With Filters That Afford Respiratory
Protection Against Toxic Dusts, Fumes, Mists, Fogs, and Smokes

Active Devices

1. M.S.A. All-Service Model S gas mask. Approval BM-1434, issued September 30, 1942, and approval BM-1434A with window indicator canister, issued June 9, 1958, to Mine Safety Appliances Co., under Schedule 14E.

2. LaFrance Protexall gas mask. Extension of approval BM-1434, issued to American-LaFrance & Foamite Industries, Inc., March 2, 1943, and extension of approval BM-1434A with window indicator canister, issued July 28, 1958, under Schedule 14E.

3. Acme Model FD universal gas mask. Approval BM-1436, issued October 27, 1943, and approval BM-1436A with window indicator canister, issued June 9, 1958, to Acme Protection Equipment Co., Inc., under Schedule 14E.

4. Willson WUG-N2 universal gas mask. Approval BM-1445, issued June 29, 1949, and approval BM-1445A with window indicator canister, issued October 16, 1958, to Willson Products, Inc., under Schedule 14E.

5. Bullard Smokeater universal gas mask. Extension of approval BM-1445, issued to E. D. Bullard Co., December 7, 1949, under Schedule 14E.

6. Davis universal gas mask. Approval BM-1448, issued August 16, 1950, and approval BM-1448A with window indicator canister, issued October 16, 1958, to Davis Emergency Equipment Co., Inc., under Schedule 14E.

Inactive Devices

1. Willson WUG-N2 universal gas mask. Approval BM-1433, issued to Willson Products, Inc., September 9, 1942, under Schedule 14E.

2. Bullard universal gas mask. Approval BM-1440, issued to E. D. Bullard Co., May 16, 1945, under Schedule 14E.

3. Bullard universal gas mask. Extension of approval BM-1433, issued to E. D. Bullard Co., May 20, 1947, under Schedule 14E.

Supplied-Air Respirators Approved Under Schedules 19,
19A, the Amendment to Schedule 19A, and 19B

Type A: Hose Masks With Blowers

The Type A supplied-air respirator (hose mask with blower) is approved for respiratory protection in any atmosphere provided that enough respirable air is supplied to the wearer by means of the blower.

Active Devices

1. Davis hose mask. Approval BM-1902, issued to Davis Emergency Equipment Co., Inc., March 30, 1931, under Schedule 19.
2. Bullard hose mask. Approval BM-1903, issued to E. D. Bullard Co., April 14, 1933, under Schedule 19.
3. Davis hose mask. Approval BM-1904, issued to Davis Emergency Equipment Co., Inc., October 29, 1934, under Schedule 19.
4. M.S.A. combination hose mask. Approval BM-1905A, issued to Mine Safety Appliances Co., July 2, 1935, under Schedule 19.
5. Davis hose mask. Approval BM-1906, issued to Davis Emergency Equipment Co., Inc., August 2, 1935, under Schedule 19.
6. LaFrance fresh-air mask. Extension of approval BM-1905A, issued to American-LaFrance & Foamite Industries, Inc., September 20, 1937, under Schedule 19.

Inactive Devices

1. M.S.A. combination hose mask. Approval BM-1901, issued to Mine Safety Appliances Co., May 29, 1929, under Schedule 19.
2. Acme supplied-air respirator, Type A. Approval BM-1910, issued to Acme Protection Equipment Co., July 16, 1938, under Schedule 19A.

Type B: Special Hose Masks Without Blowers

The Type B supplied-air respirator (special hose mask without blower) is approved for respiratory protection in any atmosphere, from which the wearer can escape unharmed without the aid of the respirator.

Active Devices

1. Davis air-line mask. Approval EM-1913, issued to Davis Emergency Equipment Co., Inc., March 10, 1939, under Schedule 19A.
2. Bullard Simplex hose mask. Approval BM-1916, issued to E. D. Bullard Co., October 14, 1939, under Schedule 19A.

Type C: Air-Line Respirators

The Type C supplied-air respirator (air-line respirator) is approved for respiratory protection in any atmosphere not immediately harmful or from which the wearer can escape without the aid of the respirator.

Continuous-Flow-Class Air-Line Respirators That Supply Air to Interior of Facepiece Continuously at a Set Rate

Active Devices

1. M.S.A. air-line respirator. Approval BM-1909, issued to Mine Safety Appliances Co., July 15, 1938, under Schedule 19A.
2. Willson air-line respirator, models CA, GAF, CA2, GE, and CC. Approval BM-1912, issued to Willson Products, Inc., October 7, 1938, under Schedule 19A.
3. Cesco No. 602 Healthguard direct-air mask. Approval BM-1917, issued to Chicago Eye Shield Co., August 17, 1940, under Schedule 19A.
4. METCO air-line respirator. Extension of approval BM-1920, issued to Metallizing Engineering Co., Inc., December 8, 1948, under Schedule 19A.
5. Cesco No. 600 Healthguard hood. Approval BM-1925, issued to Chicago Eye Shield Co., August 16, 1950, under Schedule 19A.
6. M.S.A. lead hood. Approval BM-1926, issued to Mine Safety Appliances Co., May 9, 1951, under Schedule 19A.
7. McDonald lead hood. Extension of approval BM-1926, issued to B. F. McDonald Co., September 4, 1951, under Schedule 19A.
8. McDonald lead-dust helmets Nos. 177A100 and 177A100-1. Approval BM-1927, issued to B. F. McDonald Co., October 3, 1951, under Schedule 19A.
9. McDonald Dustfoe air-line respirator. Approval BM-1928, issued to B. F. McDonald Co., August 9, 1954, under Schedule 19A.
10. M.S.A. Dustfoe air-line respirator. Extension of approval BM-1928, issued to Mine Safety Appliances Co., October 4, 1954, under Schedule 19A.
11. Bullard Lite-Weight helmet, Type C supplied-air respirator. Approval BM-1929, issued to E. D. Bullard Co., July 29, 1955, under Schedule 19B.

Inactive Devices

1. M.S.A. air-line respirator. Approval BM-1909A, issued to Mine Safety Appliances Co., May 19, 1947, under Schedule 19A.

Demand-Class Air-Line Respirators That Supply Air to Interior of Facepiece Only When Wearer Inhales and at a Rate Governed by His Breathing

Active Devices

1. M.S.A. demand-type air-line respirator. Approval BM-1922, issued to Mine Safety Appliances Co., May 27, 1949, under Schedule 19A.
2. Scott demand respirator. Approval BM-1924, issued to Scott Aviation Corp., September 28, 1949, under Schedule 19A.

Type CE: Abrasive-Blasting Helmets, Hoods, or Masks

The Type CE supplied-air respirator (abrasive-blasting helmet, hood, or mask) is approved for respiratory protection during abrasive blasting in any atmosphere not immediately harmful or from which the wearer can escape without the aid of the respirator.

Active Devices

1. M.S.A. abrasive mask. Approval BM-1907, issued to Mine Safety Appliances Co., July 15, 1938, under Schedule 19A.
2. Pangborn blast helmet, type DD-4. Approval BM-1908, issued to Pangborn Corp., July 15, 1938, under Schedule 19A.
3. Sly Purair helmet. Approval BM-1911, issued to W. W. Sly Manufacturing Co., July 16, 1938, under Schedule 19A, and July 11, 1957, under Schedule 19B.
4. Willson No. 31 abrasive-blasting helmet. Approval BM-1914, issued to Willson Products, Inc., March 10, 1939, under Schedule 19A.
5. Pangborn blast helmet, type DF-2. Approval BM-1915, issued to Pangborn Corp., March 23, 1939, under Schedule 19A.
6. Cesco No. 602 Healthguard mask. Approval BM-1918, issued to Chicago Eye Shield Co., January 4, 1941, under Schedule 19A.
7. M.S.A. abrasive mask. Approval BM-1920, issued to Mine Safety Appliances Co., April 30, 1948, under Schedule 19A.
8. METCO abrasive mask. Extension of approval BM-1920, issued to Metallizing Engineering Co., Inc., April 30, 1948, under Schedule 19A.
9. Bullard abrasive-blasting helmet No. V. Approval BM-1921, issued to E. D. Bullard Co., September 9, 1948, under Schedule 19A.
10. Willson No. 51 lightweight abrasive-blasting helmet. Approval BM-1923, issued to Willson Products, Inc., July 19, 1949, under Schedule 19A.

11. M.S.A. Blastfoe abrasive helmet. Approval BM-1926, issued to Mine Safety Appliances Co., May 9, 1951, under Schedule 19A.

12. McDonald Blastfoe abrasive helmet. Extension of approval BM-1926, issued to B. F. McDonald Co., September 4, 1951, under Schedule 19A.

13. McDonald sandblast helmet No. 177A200 and shotblast helmet No. 177A300. Approval BM-1927, issued to B. F. McDonald Co., October 3, 1951, under Schedule 19A.

14. Bullard Lite-weight helmet, Type CE supplied-air respirator. Extension of approval BM-1929, issued to E. D. Bullard Co., April 24, 1956, under Schedule 19B.

Inactive Devices

1. M.S.A. Blastfoe abrasive helmet. Approval BM-1919, issued to Mine Safety Appliances Co., October 1, 1946, under Schedule 19A.

2. McDonald Blastfoe abrasive helmet. Extension of approval BM-1919, issued to B. F. McDonald Co., October 3, 1946, under Schedule 19A.

3. M.S.A. abrasive mask. Approval BM-1907A, issued to Mine Safety Appliances Co., May 19, 1947, under Schedule 19A.

Dispersoid (Dust, Fume, and Mist) Respirators Approved Under Schedules 21 and 21A

For the purpose of these approvals, the following definitions of the terms "dust," "fume," and "mist" are used:

Dust. - Dispersoids or particulate matter, smaller than 0.1 mm. or 100 microns, formed when solid materials are disintegrated by such processes as crushing, grinding, and abrading.

Fume. - Solid dispersoids formed when vapors are condensed from heated metals and other substances.

Mists. - Liquid dispersoids formed when liquid is disintegrated, as in spray-coating and atomizing.

Pneumoconiosis-Producing and Nuisance-Dust Respirators^{5/}

These respirators are approved only for protection against the inhalation of pneumoconiosis-producing dusts and nuisance dusts, such as free silica, asbestos, aluminum, cellulose, cement, charcoal, coal, coke, flour, gypsum, iron ore, limestone, and wood.

5/ All respirators listed under Dust Respirators and some listed under Fume Respirators are also approved for protection against inhalation of pneumoconiosis-producing and nuisance dusts.

Active Devices

1. Willson bag respirator No. 200. Approval BM-2103, issued to Willson Products, Inc., January 21, 1935, under Schedule 21.

2. Cover No. 24 Dupor respirator. Approval BM-2111, issued to H. S. Cover, September 15, 1936, under Schedule 21.

3. Willson Rotiform respirator No. 200. Approval BM-2118, issued to Willson Products, Inc., December 30, 1937, under Schedule 21.

4. A.O. R1015 and R2015 respirators. Approval BM-2121, issued to American Optical Co., February 3, 1938, under Schedule 21.

5. Cover Dupor Skin-A-Cat respirator No. 40. Approval BM-2129, issued to H. S. Cover, July 5, 1939, under Schedule 21.

6. McDonald Dustfree respirator. Approval BM-2132, issued to B. F. McDonald Co., August 23, 1939, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

7. M.S.A. Dustfree respirator. Extension of approval BM-2132, issued to Mine Safety Appliances Co., August 23, 1939, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

8. A.O. R9100 respirator. Approval BM-2137, issued to American Optical Co., March 6, 1940, under Schedule 21.

9. McDonald Clear-Vue dustfree respirator. Approval BM-2147, issued to B. F. McDonald Co., July 16, 1942, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

10. M.S.A. Clear-Vue Dustfree respirator. Extension of approval BM-2147, issued to Mine Safety Appliances Co., July 16, 1942, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

11. Gasco respirator No. 24. Approval BM-2153, issued to Chicago Fire Shield Co., March 23, 1941, under Schedule 21.

12. Palmon Safety respirator. Approval BM-2158, issued to Palmon Safety Equipment Corp., March 1, 1942, under Schedule 21.

13. Palmon M-100 respirator. Approval BM-2159, issued to Palmon Safety Equipment Corp., March 1, 1942, under Schedule 21.

Inactive Devices

1. M.S.A. Comfo respirator. Approval BM-2101, issued to Mine Safety Appliances Co., January 7, 1935, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)
2. Willson bag respirator No. 300. Approval BM-2102, issued to Willson Products, Inc., January 21, 1935, under Schedule 21.
3. Pulmosan M-15, pouch-type filter respirator. Approval BM-2104, issued to Pulmosan Safety Equipment Corp., February 9, 1935, under Schedule 21.
4. Biever respirator. Approval BM-2105, issued to Standard Safety Equipment Co., March 5, 1935, under Schedule 21.
5. Willson bag respirator No. 4. Approval BM-2106, issued to Willson Products, Inc., May 27, 1935, under Schedule 21.
6. Pulmosan M-1100 pouch-type filter respirator. Approval BM-2109, issued to Pulmosan Safety Equipment Corp., March 23, 1936, under Schedule 21.
7. Cesco No. 90 Healthguard respirator. Approval BM-2113, issued to Chicago Eye Shield Co., December 10, 1936, under Schedule 21.
8. McDonald Dustfree respirator. Approval BM-2115, issued to B. F. McDonald Co., October 8, 1937, under Schedule 21.
9. M.S.A. Dustfree respirator. Extension of approval BM-2115, issued to Mine Safety Appliances Co., November 23, 1937, under Schedule 21.
10. Willson bag respirator No. 100. Approval BM-2117, issued to Willson Products, Inc., December 27, 1937, under Schedule 21.
11. Willson respirator No. 750. Approval BM-2119, issued to Willson Products, Inc., January 3, 1938, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)
12. Pulmosan D-4100 Duo-filter respirator. Approval BM-2120, issued to Pulmosan Safety Equipment Corp., January 12, 1938, under Schedule 21.
13. Hygeia Filto-Ring No. 28 respirator. Approval BM-2122, issued to Hygeia Filtering Corp., March 23, 1938, under Schedule 21.
14. M.S.A. Comfo respirator. Approval BM-2130, issued to Mine Safety Appliances Co., August 23, 1939, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

15. M.S.A. alkali-dust respirator. Approval BM-2136, issued to Mine Safety Appliances Co., December 1, 1939, under Schedule 21.

16. Willson respirators Nos. 5 and 45. Approval BM-2140, issued to Willson Products, Inc., September 28, 1940, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

17. DeVilbiss MSD respirator. Approval BM-2141, issued to The DeVilbiss Co., October 3, 1940, under Schedule 21.

18. Willson respirator No. 10. Approval BM-2146, issued to Willson Products, Inc., September 11, 1941, under Schedule 21.

19. Pulmosan respirator No. M-500. Approval BM-2150, issued to Pulmosan Safety Equipment Corp., September 22, 1944, under Schedule 21.

Toxic-Dust Respirators^{6/}

These respirators are approved only for protection against the inhalation of toxic dusts that are not significantly more toxic than lead, such as arsenic, cadmium, chromium, lead, manganese, selenium, vanadium, and their compounds.

Active Devices

1. Willson Rotiform respirator No. 200 L. Approval BM-2123, issued to Willson Products, Inc., April 18, 1938, under Schedule 21.

2. A.O. R1016 and R2016 respirators. Approval BM-2138, issued to American Optical Co., March 16, 1940, under Schedule 21.

3. A.O. R9100T respirator. Approval BM-2144, issued to American Optical Co., May 19, 1941, under Schedule 21.

Inactive Devices

1. M.S.A. Comfo respirator. Approval BM-2107, issued to Mine Safety Appliances Co., August 9, 1935, under Schedule 21.

2. Pulmosan L-2100 pouch-type filter respirator. Approval BM-2110, issued to Pulmosan Safety Equipment Corp., July 17, 1936, under Schedule 21.

3. Willson respirator No. 750L. Approval BM-2125, issued to Willson Products, Inc., October 19, 1938, under Schedule 21.

^{6/} All respirators listed under Dust Respirators and some listed under Fume Respirators are also approved for protection against inhalation of toxic dusts.

4. McDonald Dustfoe respirator. Approval BM-2126, issued to B. F. McDonald Co., March 10, 1939, under Schedule 21.

5. M.S.A. Dustfoe respirator. Extension of approval BM-2126, issued to Mine Safety Appliances Co., March 10, 1939, under Schedule 21.

6. Willson respirators Nos. 5L and 45L. Approval BM-2143, issued to Willson Products, Inc., December 19, 1940, under Schedule 21.

7. Hygeia Reef No. 12 respirator. Approval BM-2145, issued to Hygeia Filtering Corp., July 15, 1941, under Schedule 21.

Dust Respirators^{7/}

These respirators are approved only for protection against the inhalation of dusts that are not significantly more toxic than lead, such as arsenic, cadmium, chromium, lead, manganese, selenium, vanadium, and their compounds and pneumoconiosis-producing and nuisance dusts.

Active Devices

1. Cover Dupor No. 46 respirator. Approval BM-2124, issued to H. S. Cover, October 3, 1938, under Schedule 21.

2. A.O. R1017 and R2017 respirators (formerly R1000AD). Extension of approval BM-2138, issued to American Optical Co., February 4, 1941, under Schedule 21.

3. Cesco Healthguard No. 94 respirator. Approval BM-2142, issued to Chicago Eye Shield Co., October 3, 1940, under Schedule 21.

4. McDonald Clear-Vue Dustfoe respirator. Approval BM-2148, issued to B. F. McDonald Co., July 21, 1942, under Schedule 21.

5. M.S.A. Clear-Vue Dustfoe respirator. Extension of approval BM-2148, issued to Mine Safety Appliances Co., July 21, 1942, under Schedule 21.

6. Willson respirator No. 750DA. Approval BM-2151, issued to Willson Products, Inc., October 5, 1944, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

7. Willson respirators Nos. 5D and 45D. Approval BM-2152, issued to Willson Products, Inc., October 19, 1944, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

^{7/} Some of the respirators listed under Fume Respirators are approved for protection against inhalation of dusts that are not significantly more toxic than lead.

8. A.O. 13000 respirator. Approval BM-2154, issued to American Optical Co., January 2, 1947, under Schedule 21.

9. A.O. P5050 and P5050A respirators. Approval BM-2156, issued to American Optical Co., June 23, 1949, under Schedule 21, and August 20, 1957, under Schedule 21A. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

10. Pulmosan L-800 respirator. Extension of approval BM-2160, issued to Pulmosan Safety Equipment Corp., February 1, 1953, under Schedule 21. (Also approved for protection against inhalation of chromic acid mist.)

11. Willson respirators Nos. 6 and 460. Approval BM-2161, issued to Willson Products, Inc., June 30, 1950, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

12. Willson respirator No. 840. Approval BM-2162, issued to Willson Products, Inc., June 30, 1950, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

13. DeVilbiss MFD-501 respirator. Extension of approval BM-2154, issued to The DeVilbiss Co., November 3, 1950, under Schedule 21.

14. DeVilbiss MSE-501 respirator. Extension of approval BM-2156, issued to The DeVilbiss Co., November 20, 1950, under Schedule 21, and September 18, 1957, under Schedule 21A. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

15. Pulmosan L-3100 pouch-type respirator. Approval BM-2165, issued to Pulmosan Safety Equipment Corp., December 11, 1950, under Schedule 21.

16. Cesco No. 96 respirator. Approval BM-2167, issued to Chicago Eye Shield Co., October 16, 1952, under Schedule 21.

17. M.S.A. Dustfoc #45 respirator. Extension of approval BM-2166, issued to Mine Safety Appliances Co., October 25, 1955, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

18. McDonald Dustfoc #66 respirator. Extension of approval BM-2166, issued to B. F. McDonald Co., October 25, 1955, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

19. M.S.A. Comfo respirator with "Type F" filters. Approval BM-2168, issued to Mine Safety Appliances Co., October 25, 1955, under Schedule 21A. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

20. Willson Monomask respirator No. 600. Approval BM-2170, issued to Willson Products, Inc., January 18, 1956, under Schedule 21A. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

21. M.S.A. Ltd. "Dustfoe #55" respirator. Extension of approval BM-2166, issued to Mine Safety Appliances Co., Ltd., Glasgow, Scotland, March 28, 1956, under Schedule 21. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

22. A.O. R2090 respirator. Approval BM-2173, issued to American Optical Co., July 11, 1958, under Schedule 21A. (Also approved, August 13, 1958, for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

23. Pulmosan C-264 respirator. Approval BM-2175, issued to Pulmosan Safety Equipment Corp., August 26, 1958, under Schedule 21A. (Also approved for protection against inhalation of chromic acid mists.)

24. A.O. R5090 respirator. Approval BM-2174, issued to American Optical Co., August 18, 1958, under Schedule 21A. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

25. Welsh No. 7100 respirator. Approval BM-2177, issued to Welsh Manufacturing Co., August 29, 1958, under Schedule 21A. (Also approved for protection against inhalation of pneumoconiosis-producing, chromic acid, and nuisance mists.)

Inactive Devices

1. Willson bag respirator No. 400L. Approval BM-2108, issued to Willson Products, Inc., September 5, 1935, under Schedule 21.

2. Pulmosan ML-3100 pouch-type filter respirator. Approval BM-2112, issued to Pulmosan Safety Equipment Corp., November 30, 1936, under Schedule 21.

3. Cesco Healthguard No. 91 respirator. Approval BM-2114, issued to Chicago Eye Shield Co., August 6, 1937, under Schedule 21.

4. Cesco Healthguard No. 92 respirator. Approval BM-2116, issued to Chicago Eye Shield Co., November 8, 1937, under Schedule 21.

5. Willson respirator No. 752L. Approval BM-2107, issued to Willson Products, Inc., March 10, 1939, under Schedule 21.

6. M.S.A. Comfo respirator. Approval BM-2133, issued to Mine Safety Appliances Co., October 13, 1939, under Schedule 21.

7. McDonald Dustfoe respirator. Approval BM-2134, issued to B. F. McDonald Co., October 13, 1939, under Schedule 21.

8. M.S.A. Dustfoe respirator. Extension of approval BM-2134, issued to Mine Safety Appliances Co., October 13, 1939, under Schedule 21.

9. M.S.A. Compact Comfo respirator. Approval BM-2164, issued to Mine Safety Appliances Co., October 16, 1950, under Schedule 21.

10. M.S.A. Dusfoe #55 respirator. Approval BM-2166, issued to Mine Safety Appliances Co., November 30, 1951, under Schedule 21.

11. McDonald Dustfoe #55 respirator. Extension of approval BM-2166, issued to B. F. McDonald Co., December 10, 1951, under Schedule 21.

Fume Respirators

These respirators are approved for protection against the inhalation of fumes that are not significantly more toxic than lead.

Active Devices

1. Willson respirators Nos. 780A and 880A. Extension of approval BM-2149, issued to Willson Products, Inc., August 7, 1942, under Schedule 21. (Also approved for protection against inhalation of dusts that are not significantly more toxic than lead, and pneumoconiosis-producing, chromic acid, and nuisance mists.)

2. Willson WHG-DFM respirator. Approval BM-2155, issued to Willson Products, Inc., March 1, 1948, under Schedule 21. (Also approved for protection against inhalation of dusts that are not significantly more toxic than lead, and pneumoconiosis-producing, chromic acid, and nuisance mists.)

3. M.S.A. Comfo respirator with "Type S" filters. Approval BM-2169, issued to Mine Safety Appliances Co., December 8, 1955, under Schedule 21A. (Also approved for protection against inhalation of dusts that are not significantly more toxic than lead, and pneumoconiosis-producing, chromic acid, and nuisance mists.)

4. A.O. R5056 and R5056F respirators. Extension of approval BM-2153, to cover the use of new filters, issued to American Optical Co., February 28, 1957, under Schedule 21A. (Also approved for protection against inhalation of dusts that are not significantly more toxic than lead, and pneumoconiosis-producing, chromic acid, and nuisance mists.)

5. Pulmosan C-261 respirator. Approval BM-2171, issued to Pulmosan Safety Equipment Corp., February 28, 1957, under Schedule 21A. (Also approved for protection against inhalation of dusts that are not significantly more toxic than lead, and chromic acid mist.)

Inactive Devices

1. Willson respirator No. 770. Approval BM-2128, issued to Willson Products, Inc., April 15, 1939, under Schedule 21.

2. M.S.A. Comfo respirator. Approval BM-2139, issued to Mine Safety Appliances Co., March 27, 1940, under Schedule 21.

3. Willson respirator No. 570. Approval BM-2149, issued to Willson Products, Inc., August 7, 1942, under Schedule 21. (Also approved for protection against inhalation of dusts that are not significantly more toxic than lead, and pneumoconiosis-producing, chromic acid, and nuisance mists.)

4. Willson respirator No. 750F. Approval BM-2157, issued to Willson Products, Inc., August 12, 1948, under Schedule 21.

Mist Respirators

No respirators have been approved for protection against mists only, but several respirators have been approved for mists in combination with other dispersoids.

Respirators that have been approved for protection against inhalation of pneumoconiosis-producing, chromic-acid, and nuisance mists are listed as follows: Under Pneumoconiosis-Producing and Nuisance-Dust Respirators active items 6, 7, 9, and 10; inactive items 1, 11, 14, and 16. Under Dust Respirators, active items 6, 7, 9, 11, 12, 14, 17, 18, 19, 20, 21, 22, 24, and 25. Under Fume Respirators, active items 1, 2, 3, and 4; inactive item 3.

Respirators that have been approved for protection against inhalation of chromic acid mist are listed as follows: Under Dust Respirators, active items 10 and 23. Under Fume Respirators, active item 5.

Nonemergency Gas Respirators (Chemical-Cartridge Respirators) Approved Under Schedules 23 and 23A

Type B: Organic-Vapor Respirators

These respirators are approved for respiratory protection in atmospheres not immediately dangerous to life or containing not more than 0.1 percent, by volume, of organic vapors.

Active Devices

1. M.S.A. twin-cartridge-type respirator, G.M.A. Approval BM-2301, issued to Mine Safety Appliances Co., June 4, 1945, under Schedule 23.

2. Willson No. 731A chemical-cartridge respirator. Approval BM-2303, issued to Willson Products, Inc., July 30, 1946, under Schedule 23.

3. Binks twin-cartridge respirator, type 8. Extension of approval BM-2301, issued to Binks Manufacturing Co., June 18, 1948, under Schedule 23.

4. Willson No. 801 chemical-cartridge respirator. Approval BM-2302, issued to Willson Products, Inc., April 19, 1951, under Schedule 23.

5. A.O. R5051 chemical-cartridge respirator. Approval BM-2304, issued to American Optical Co., July 19, 1949, under Schedule 23, and September 18, 1957, under Schedule 23A.

6. DeVilbiss MSE-502 chemical-cartridge respirator. Extension of approval BM-2304, issued to The Devilbiss Co., October 19, 1950, under Schedule 23, and September 18, 1957, under Schedule 23A.

7. Casco No. 99 chemical-cartridge respirator. Approval BM-2307, issued to Chicago Eye Shield Co., October 19, 1952, under Schedule 23.

8. Pulmosan No. C-356 chemical-cartridge respirator. Approval BM-2308, issued to Pulmosan Safety Equipment Corp., September 3, 1953, under Schedule 23.

9. Willson Nos. 741A and 841 chemical-cartridge respirators. Extension of approval BM-2308, issued to Willson Products, Inc., September 3, 1952, under Schedule 23.

10. M.S.A. Gasfoe chemical-cartridge respirator. Approval BM-2310, issued to Mine Safety Appliances Co., October 14, 1955, under Schedule 23A.

11. McDonald Casfoe chemical-cartridge respirator. Extension of approval BM-2310, issued to B. F. McDonald Co., December 29, 1955, under Schedule 23A.

Type BE: Dispersoid and Organic-Vapor Respirators

These respirators are approved for respiratory protection in atmospheres that are not immediately dangerous to life and that contain either dispersoids (type of dispersoid stated for each respirator listed below) not significantly more toxic than lead, or not more than 0.1 percent, by volume, of organic vapors, or both.

Active Devices

1. A.O. R5055 chemical-cartridge respirator. Approval BM-2305 for dusts and organic vapors, issued to American Optical Co., February 3, 1950, under Schedule 23, and September 18, 1957, under Schedule 23A.

2. M.S.A. Gas-Fume respirator. Approval BM-2306 for fumes and organic vapors, issued to Mine Safety Appliances Co., October 17, 1951, under Schedule 23.

3. Willson Nos. 741AD and 841D chemical-cartridge respirators. Approval BM-2308 for dusts and organic vapors, issued to Willson Products, Inc., November 24, 1952, under Schedule 23.

4. M.S.A. Comfo chemical-cartridge respirator with "Static-Web" filter. Extension of approval BM-2301 for toxic dusts and organic vapors, issued to Mine Safety Appliances Co., June 24, 1953, under Schedule 23.

5. Cesco No. 99DF chemical-cartridge respirator. Extension of approval BM-2307 for toxic dusts and organic vapors, issued to Chicago Eye Shield Co., April 29, 1955, under Schedule 23.

6. M.S.A. Gasfoe chemical-cartridge respirator with "Static Web" filter. Extension of approval BM-2310 for toxic dusts and organic vapors, issued to Mine Safety Appliances Co., January 21, 1957, under Schedule 23A.

7. A.O. R5561 chemical-cartridge respirator. Approval BM-2311 for dusts, fumes, mists, and organic vapors, issued to American Optical Co., October 2, 1957, under Schedule 23A.

8. Pulmosan No. C-259 chemical-cartridge respirator. Extension of approval BM-2309 for dusts and organic vapors, issued to Pulmosan Safety Equipment Corp., August 26, 1958, under Schedule 23A.

NAMES AND ADDRESSES OF COMPANIES TO WHICH APPROVALS HAVE BEEN GRANTED

Acme Protection Equipment Co., 1201 Kalamazoo St., South Haven, Mich.
 American-LaFrance Corp., Elmira, N. Y.
 American Optical Co., Southbridge, Mass.
 Binks Manufacturing Co., 3114 Carroll Ave., Chicago 12, Ill.
 E. D. Bullard Co., 2680 Bridgeway, Sausalito, Calif.
 Chicago Eye Shield Co., 2727 West Roscoe St., Chicago 18, Ill.
 H. S. Cover, Station A, South Bend, Ind.
 Davis Emergency Equipment Co., Inc., 45 Halleck St., Newark 4, N. J.
 Draegerwerk, Lübeck, Germany.
 B. F. McDonald Co., 5721 West 96th St., Los Angeles 45, Calif.
 Metallizing Engineering Co., Inc., 1101 Prospect Ave., Westbury, N. Y.
 Mine Safety Appliances Co., Bradnock, Thomas, and Meade Sts., Pittsburgh 8, Pa.
 Mine Safety Appliances Co., Ltd., Queenslie Industrial Estate, Glasgow E. 3, Scotland.
 Pangborn Corporation, Hagerstown, Md.
 Pulmosan Safety Equipment Corp., 644 Pacific St., Brooklyn 17, N. Y.
 Scott Aviation Corp., Lancaster, N. Y.
 Siebe, Gorman & Co., Ltd., London, England.
 W. W. Sly Manufacturing Co., 4735 Train Ave., Cleveland 2, Ohio.
 Standard Safety Equipment Co., 252 W. Ontario St., Chicago 10, Ill.
 Welsh Manufacturing Co., 9 Magnolia St., Providence, R. I.
 Willson Products Division, Ray-O-Vac Co. (formerly Willson Products, Inc.), Reading, Pa.

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4. _____. Procedure for Testing Filter-Type Dust, Fume, and Mist Respirators for Permissibility. Sched. 21, Aug. 20, 1934, 14 pp.; Sched. 21A (rev. of Sched. 21), Apr. 19, 1955, 7 pp. (Code of Federal Regulations reference: 30 CFR, part 14).
5. _____. Procedure for Testing Nonemergency Gas Respirators (Chemical Cartridge Respirators) for Permissibility. Sched. 23, Nov. 13, 1944, 10 pp.; Sched. 23A (rev. of Sched. 23), Apr. 23, 1955, 7 pp. (Code of Federal Regulations reference: 30 CFR, part 14a).
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